What is claimed is:

1. A method for recording a data stream having multiple reproduction paths on a recording medium, comprising:

checking whether total bit rate (TBR) of a data stream

5 section pertaining to one path among multiple reproduction paths is lower than a minimum bit rate and, if lower, assigning an additional bit rate to the data stream section such that the TBR of the data stream section is not lower than said minimum bit rate; and

10 recording a multi-path data stream including the data stream section on a recording medium.

2. The method set forth in claim 1, wherein said minimum bit rate is determined to a value enough to prevent buffer underrun during changes in reproduction path.

15 3. The method set forth in claim 1, wherein said data stream section is a stream range referred by a plurality of entry points, each entry point pointing to an interval of said data stream section.

4. The method set forth in claim 3, wherein the

20 additional bit rate is assigned to a stream interval pertaining to only one entry point.

5. The method set forth in claim 3, wherein the additional bit rate is distributed to a plurality of stream intervals within said data stream section.

25 6. The method set forth in claim 3, wherein said data stream section whose TBR is to be checked is overlapped with another adjacent data stream section in such a manner that at least one entry point is commonly owned by said two data stream

sections.

7. The method set forth in claim 6, wherein a jump for path change during reproduction of the recorded multi-path data stream is allowed on every entry point.

5   8. The method set forth in claim 3, wherein said data stream section whose TBR is to be checked is not overlapped with another adjacent data stream section.

9. The method set forth in claim 8, wherein a jump for path change during reproduction of the recorded multi-path data

10 stream is allowed on every data stream section not entry point.

10. The method set forth in claim 1, wherein said minimum bit rate is at least 24Mbps.

11. A recording medium including a data stream having multiple reproduction paths recorded thereon, wherein:

15   total bit rate (TBR) of an arbitrary data stream section of one path among multiple reproduction paths is not lower than a minimum bit rate that is set to a value enough to prevent buffer underrun during changes in reproduction path.

12. The recording medium set forth in claim 11, wherein

20 said data stream section is a stream range referred by a plurality of entry points, each entry point pointing to an interval of said data stream section.

13. The recording medium set forth in claim 12, wherein said data stream section is overlapped with another adjacent

25 data stream section in such a manner that at least one entry point is commonly owned by said two data stream sections.

14. The recording medium set forth in claim 13, wherein a jump for path change during reproduction of the recorded multi-

path data stream is allowed on every entry point.

15. The recording medium set forth in claim 12, wherein said data stream section is not overlapped with another adjacent data stream section.

16. The recording medium set forth in claim 15, wherein a jump for path change during reproduction of the recorded multi-path data stream is allowed on every data stream section not entry point.